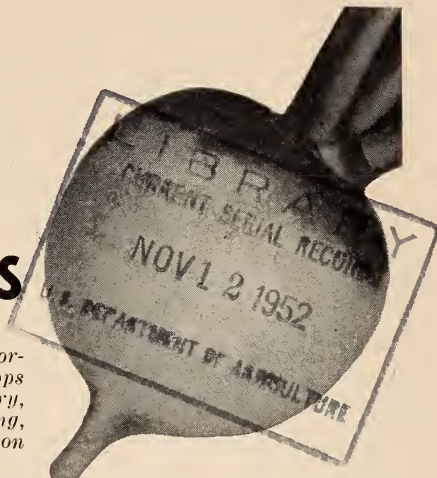


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Production of Turnips and Rutabagas

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TURNIPS and rutabagas are among the most commonly grown and widely adapted root crops of the United States. Both are grown as general farm crops, by market gardeners, and in home gardens. Essentially cool-climate vegetables, they are grown widely in northern Europe, in Great Britain, in Canada, and in the United States. Commercial production in the northern part of the United States centers mainly around their use during the fall and winter for human consumption and for livestock feeding. However, truck-growing areas in the South produce turnips and turnip greens at all seasons, and in the Southern States turnips are one of the standard home garden crops, especially for greens. Rutabagas are not adapted to the South.

DESCRIPTION

Turnips and rutabagas are members of the Cruciferae or mustard family and belong to the genus *Brassica*. To this extent they are related to cabbage and cauliflower, but they belong to distinct species, the turnip being *B. rapa* and the rutabaga *B. napobrassica*. Turnips resemble rutabagas in size of plant, in general size and shape of root, and in flesh colors. They differ chiefly in leaf characters and in minor details of root shape and structure. Turnip leaves are usually light green, thin, and hairy, whereas those of the rutabaga are bluish, thick like cabbage, and smooth. Turnip roots generally have little or no neck and a distinct taproot, while rutabagas often are slightly more elongated and have a thick leafy neck and roots arising from the under side as well as from the taproot. Analyses show rutabagas to be somewhat higher in total dry matter and total digestible nutrients. Neither is as high in sugar content as the table beet, sugar beet, half-sugar mangel, or the mangel-wurzel.

CLIMATIC ADAPTATION

Turnips and rutabagas are essentially cool-climate crops and make their most vigorous root growth at relatively low growing temperatures regardless of date of seeding. Both are resistant to frost and

mildly freezing temperatures. Since turnips can be grown to a suitable stage of maturity in most localities in 60 to 80 days, it is possible to produce them both as a spring and as a fall crop. Turnips are grown in the South mainly as a late fall, winter, or early spring vegetable. In the North turnips are grown mainly as a fall crop for winter storage and livestock feeding. Because of their short growing season, turnips have a rather wide adaptation as a catch crop. Rutabagas require a longer growing season, and in the North only one crop a year is usually possible, this being spring-planted and harvested late in the fall.

If prolonged cool weather, appreciably below 50° F., occurs after spring plantings of these crops are well along in their development, they may show a tendency to form seedstalks instead of forming large marketable roots with small tops. Turnips and rutabagas normally behave as biennials, forming their seed the second year.

In many regions where the season is long enough for the production of two crops a year, turnips are seeded after other vegetables, such as early potatoes, early cabbage, beets, peas, and onions grown from sets or transplants. They are sometimes seeded broadcast in the outer rows of corn at the last cultivation. In this case they will not suffer adversely from shading and will make good root development during the cool days following corn cutting. Unlike parsnips and salsify, they are not improved in quality by freezing; hence they should not be left in the soil over winter. In the South where the winters are mild, turnips may be left in the field over winter.

SOIL

In common with all cultivated root crops, a moderately deep, friable, highly fertile soil is best. The depth of surface soil for turnips and rutabagas is of less importance than with other more elongated root crops, because of their shallow habit of growth. Extremely heavy soils are undesirable, because of their bad influence on the shape of the roots, while extremely light sandy soils may result in a supply of moisture insufficient for proper growth. Turnips thrive on fairly acid soils, but rutabagas probably have a somewhat higher lime requirement.

VARIETIES

The common varieties of turnips and rutabagas differ mainly in color and shape of root. Although there are both white-fleshed and yellow-fleshed varieties of each, most turnip varieties are white-fleshed, whereas most rutabaga varieties are yellow-fleshed. Similarly, these varieties may have white, green, or purplish-red crowns. Color of crown apparently has no significance except as it affects the appearance of the root for market. The most common white-fleshed varieties of turnips listed by seedsmen are Purple Top White Globe, Purple Top Strap Leaf, Purple Top White Milan, Extra Early White Milan, and White Egg. Shogoin, a white-skinned and white-fleshed Japanese variety with erect-growing, light-green strap leaves, is becoming more widely used each year in the South for greens or salad, as it is not damaged by aphid attack as much as the other varieties mentioned. The early season, white-fleshed varieties are

most in favor in the South for the early spring market. The three most important yellow-fleshed varieties of turnips are Golden Ball or Orange Jelly, Amber or Yellow Globe, and Yellow Aberdeen. The variety Seven Top is grown in the South for use as greens, which are prepared for the table much like kale and spinach. Only three varieties of rutabagas are commonly listed by seedsmen in the United States—American Purple Top, Monarch or Tankard, and Sweet Perfection White.

MANURE AND FERTILIZERS

The fertilizer requirements of turnips and rutabagas are similar, and it has been found that large applications of high-grade fertilizers seldom pay. When turnips are seeded as a fall crop following a crop which was well manured and fertilized, no additional application may be necessary. For the average soil adapted to turnip culture an application of 400 to 600 pounds to the acre of a fertilizer containing 4 percent nitrogen, 12 percent phosphoric acid, and 4 percent potash is all that is usually justified. Rutabagas may profitably be fertilized somewhat more heavily than turnips, since the former occupy the land longer and ordinarily do not get the benefit of residual fertilizer left by some early season crop.

SEEDING AND CULTIVATION

Turnips are seeded either in late autumn in the South for a winter crop, in the spring as soon as the land can be prepared, or in late summer as a fall crop. This provides the cool temperature desirable. Rutabagas are grown in the North mainly as a crop for fall harvest and should be seeded in the spring. In the middle latitudes of the country a crop can usually be produced before hard freezing weather if sown about July 20 to August 1.

An ounce of seed is sufficient for 200 feet of row. Seeded in rows 30 inches apart, 2 pounds of seed will plant an acre. Broadcasting of the seed is recommended only on very fertile, well-prepared seedbeds, where weed control will not be difficult. At the Wyoming Agricultural Experiment Station, however, double the yield resulted from drill culture as compared with broadcasting. In row culture, the plants should be thinned to stand 4 to 6 inches apart. Thorough cultivation should be given the plants to keep weeds under control.

DISEASES AND INSECTS

Such diseases as clubroot, root knot, leaf spot, white rust, scab, anthracnose, mosaic, and rhizoctonia rot, which sometimes attack turnips and rutabagas, are seldom serious enough to warrant special control measures. If they become serious, the same methods of control may be used that are recommended for these diseases on cabbage in Farmers' Bulletin 1439, Diseases of Cabbage and Related Plants.

The common turnip louse or aphid is undoubtedly the most troublesome insect affecting the turnip crop in the United States. This insect works on the under sides of the leaves and so close to the ground that it is very difficult to reach either with a dust or with a spray. In cases of severe infestation the outer leaves curl and turn yellow.

Farmers' Bulletin 1863, the Turnip Aphid in the Southern States and Methods for its Control, can be obtained from the United States Department of Agriculture, Washington 25, D. C.

For information regarding the control of other insects on turnips and rutabagas, apply to your county agent, your State agricultural experiment station, or to the United States Department of Agriculture, Washington 25, D. C.

HARVESTING AND MARKETING

Both turnips and rutabagas are harvested by hand. Rutabagas should be pulled when the soil is comparatively dry, so that a minimum of dirt may adhere to the branch roots. For the early spring market, turnips are washed, the tops are left on, and the turnips are tied in bunches of about six, the exact number depending somewhat on the size of the roots. The advisability of washing turnips and rutabagas sold by the bushel or the hundredweight depends upon both their condition at harvest and the demands of the market. Since the legal weight of a bushel of turnips in the different States ranges from 42 to 60 pounds, gross sales should be made on the hundredweight or ton basis.

STORAGE

The best type of winter storage depends on the severity of the winter climate and the quantity of roots to be stored. For storage of large quantities in mild climates, out-of-door pits or piles are satisfactory. In severe climates and for storage of small lots, indoor or specially constructed storage is recommended.

The pit or pile should be located on well-drained soil, leveled off and floored with loose 1-inch boards or with a bed of straw. It should not be more than 6 to 8 feet wide and 4 to 6 feet high, to avoid heating at the center of the pile, and long enough to accommodate the quantity to be stored. Wooden chutes or stovepipe should be inserted at intervals of 8 to 10 feet to provide proper aeration. If the pile is to be opened during the winter it is well to provide partitions insulated with soil or straw about every 6 feet, so that only a small part of the pile need be disturbed or exposed to freezing when roots are being withdrawn. Alternate layers of straw and soil are commonly used as covering material for pit storage, the thickness depending upon the severity of winter temperatures. A furrow or ditch should be provided all around the base of the pile, to provide runoff for possible excess water.

For cellar storage, crates or small piles laid on a dirt floor are satisfactory. Small quantities of turnips may be stored in a cool cellar covered with moistened clean sand to keep them fresh. (See Farmers' Bulletin 1939, Home Storage of Vegetables and Fruits.) The storage temperature in a cellar or in a cold-storage room should remain between 32° and 35° F., with a relative humidity of 90 to 95 percent. Dry furnace-heated cellars with concrete floors are not satisfactory for storage.

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